

DOUBLY SALIENT MACHINE WITH PERMANENT  
MAGNETS IN STATOR TEETH

Abstract of the Disclosure

Permanent magnet machines including doubly salient machines having one or more permanent magnets located at least partly and preferably entirely within the stator teeth, thereby avoiding weakening of the stator structure while reducing acoustic noise. The magnets may be located in only a subset of the stator teeth, thereby lowering magnet material and manufacturing costs, and all such magnets may have north poles directed toward an interior of the machine, resulting in reduced cogging and negative torques with improved torque densities. The permanent magnets may also extend within the stator teeth on an angle or diagonal, thereby allowing use of magnets which are wider than the teeth themselves to produce greater flux. Further, a magnetizing device having a single coil may be used to simultaneously magnetize all the stator magnets with a common polarity.